DESCRIPTION

Translational Research (formerly The Journal of Laboratory and Clinical Medicine) delivers original investigations in the broad fields of laboratory, clinical, and public health research. Published monthly since 1915, it keeps readers up-to-date on significant biomedical research from all subspecialties of medicine. Interdisciplinary and cross-disciplinary in scope, it aims to expedite the translation of scientific discovery into new or improved standards of care and promotes a wide-ranging exchange between basic, preclinical, clinical, epidemiologic, and health outcomes research. It encourages submission of studies describing preclinical research with potential for application to human disease, and studies describing research obtained from preliminary human experimentation with potential to refine the understanding of biological principles underpinning human disease. Also encouraged are studies describing public health research with potential for application to the clinic, disease prevention, or healthcare policy.

Benefits to authors
We also provide many author benefits, such as free PDFs, a liberal copyright policy, special discounts on Elsevier publications and much more. Please click here for more information on our author services.

Please see our Guide for Authors for information on article submission. If you require any further information or help, please visit our Support Center

IMPACT FACTOR

2017: 4.880 © Clarivate Analytics Journal Citation Reports 2018

EDITORIAL BOARD

Editor-in-Chief
Jeffrey Laurence, Weill Cornell Medical College, New York, New York, USA

Associate Editors
James L. Cook, Loyola University Medical Center, Chicago, Illinois, USA
Jay L. Goldstein, NorthShore University HealthSystem, Evanston, Illinois, USA
Brian D. Hoit, Case Western Reserve University, Cleveland, Ohio, USA
David W. Kamp, Northwestern University, Chicago, Illinois, USA
Martha P. Mims, Baylor College of Medicine, Houston, Texas, USA
Timothy Niewold, NYU School of Medicine, New York, New York, USA
Roberto Salvatori, John Hopkins University, Baltimore, Maryland, USA
James A. Shayman, University of Michigan, Ann Arbor, Michigan, USA
Gregory Vercellotti, University of Minnesota, Minneapolis, Minnesota, USA
Neal Weintraub, Medical College of Georgia, Augusta, Georgia, USA

Editorial Advisory Board
Ziyad Al-Aly, Saint Louis Veterans Affairs Medical Center, St Louis, Missouri, USA
Bryan Neil Becker, University of Chicago, Chicago, Illinois, USA
David G. Beer, University of Michigan, Ann Arbor, Michigan, USA
Lars Berglund, University of California, Davis, Medical Center, Sacramento, California, USA
Robert D. Blank, Medical College of Wisconsin, Milwaukee, Wisconsin, USA
Bradley E. Britigan, University of Nebraska Medical Center (UNMC), Omaha, Nebraska, USA
Ronald J. Buckanovich
Matthew A. Ciorba, Washington University School of Medicine, St. Louis, Missouri, USA
Nicholas O. Davidson, Washington University School of Medicine, St. Louis, Missouri, USA
Steven M. Dudek, University of Illinois at Chicago, Chicago, Illinois, USA
Carmella Evans-Molina, Indiana University School of Medicine, Indianapolis, Indiana, USA
Steven Fisher, University of Maryland School of Medicine, Baltimore, Maryland, USA
Nikolaos G. Frangogiannis, Albert Einstein College of Medicine, New-York, New York, USA
Joe G. N. Garcia, Arizona Health Sciences Center, Danville, Arizona, USA
N. Lynn Henry, University of Utah, Salt Lake City, Utah, USA
Jeffrey Hodgin, University of Michigan Health System, Ann Arbor, Michigan, USA
Allan S. Jaffe, Mayo Clinic, Rochester, Minnesota, USA
Edward N. Janoff, University of Colorado School of Medicine, Aurora, Colorado, USA
Ravi Kalhan, Northwestern University, Chicago, Illinois, USA
Sean W. P. Koppe, University of Illinois College of Medicine, Chicago, Illinois, USA
Robert Kratzke, University of Minnesota Medical School, Minneapolis, Minnesota, USA
Edward Lesnifskey, Hunter Holmes McGuire VA Medical Center, Richmond, Virginia, USA
Emil Lou, University of Minnesota Medical School, Minneapolis, Minnesota, USA
Ali J. Marian, University of Texas at Houston Health Sciences Center, Houston, Texas, USA
Cary N. Mariash, Indiana University Health, Indianapolis, Indiana, USA
Shuji Ogino, Harvard University, Boston, Massachusetts, USA
Manish Patel, University of Minnesota, Minneapolis, Minnesota, USA
Subramaniam Pennathur, University of Michigan
Steven W. Pipe, University of Michigan Health System, Ann Arbor, Michigan, USA
Amr Sawalha, University of Michigan, Ann Arbor, Michigan, USA
Benjamin D. Singer, Northwestern University Feinberg School of Medicine, Chicago, Illinois, USA
Melissa R. Snyder, Mayo Clinic, Rochester, Minnesota, USA
Robert F. Todd III, MD, PhD, Baylor College of Medicine, Houston, Texas, USA
Jill Waalen, The Scripps Research Institute, La Jolla, California, USA

Senior Managing Editor
Michael J. Franklin, University of Minnesota, Minneapolis, Minnesota, USA
GUIDE FOR AUTHORS

Aims and Scope
Translational Research publishes original investigations in the broad fields of laboratory and clinical medicine. It aims to expedite the translation of scientific discovery into new or improved standards of care by promoting a wide-ranging exchange between basic, preclinical, clinical, epidemiologic, and health outcomes research. Reports of purely laboratory or animal investigations should have the potential for application to human disease, and reports of preliminary human investigations should have the potential for advancing our understanding of the biology of human disease. Reports of public health research should have the potential for application to the clinic, disease prevention, or healthcare policy. Case reports/series are encouraged, especially if they provide important mechanistic insight or illuminate a novel therapeutic principle.

Article Type and Length
Research articles. Original empirical research can be submitted as a Full-Length Article. Full-Length Articles describe original research in all fields of medicine; there is no maximum word limit.

Reviews. Review articles are welcomed for both state-of-the-art comprehensive reviews, directed at research scientists in specific fields, and more general informative reviews, directed at the broader community of clinical investigators. Originality is critical in order to contribute to the medical literature, and the perspective should be fresh and the synthesis unique. Authors of reviews should realize that the Journal is multidisciplinary and that reviews for such a journal require appropriate interpretive material. Clarity of presentation is a major criterion for acceptance.

Letters to the Editor. Letters to the Editor commenting on published articles may be submitted. These comments should be directed at confirming the results (from a different approach), extending the original report, or refuting results or the authors’ interpretation. Maximum length is 1000 words; maximum number of references is 15. The Editor reserves the right to decide on publication of letters, shorten them, remove objectionable comments, and make other changes in accord with the style of Translational Research.

Featured New Investigator Submissions and Annual Award
New investigators are encouraged to submit their original research or review articles to Translational Research. Such articles, if deemed acceptable after peer review, are published as part of the Featured New Investigator series. Each Featured New Investigator article is published first in the line-up of each month’s issue of the Journal, along with a biographical note about the author. In addition, the best article published in the preceding year is eligible for a new award of $1500 plus travel expenses to present the work at the annual meeting of the Central Society for Clinical and Translational Research. New investigators must be the first or senior author on a paper and must be within seven years of completing post-doctoral or fellowship training at the time of submission.

Contact details for submission
Please send queries concerning the submission or review process to the Senior Managing Editor, Michael Franklin, MS at frank061@umn.edu.

BEFORE YOU BEGIN
Review and selection
All articles are evaluated by the Editor for suitability for consideration for publication in Translational Research. Potentially acceptable submissions will also be reviewed in detail by two additional referees with expertise in the specific area. All revised manuscripts are carefully re-examined with no guarantee of acceptance, and authors will only have two opportunities to make revisions to the same manuscript. Final acceptance is based on originality, significance, documentation of conclusions, and form of presentation.

Ethics in publishing
Please see our information pages on Ethics in publishing and Ethical guidelines for journal publication.

Human subject research
Articles reporting studies in human subjects must be accompanied by statements that the research was carried out according to The Code of Ethics of the World Medical Association (Declaration of Helsinki), that informed consent was obtained, and that the author’s institutional review board has approved the study. This statement must be included in the Methods section. The Journal encourages
authors to discuss the ethical concerns in research that involves significant risk to participants. All clinical trials that prospectively assign human subjects to intervention and comparison groups for the purposes of evaluating the cause-and-effect relationship between a medical intervention and a health outcome must be registered with a public registry before submission of a paper based on the trial. Studies that are designed for other purposes (retrospective records review, pharmacokinetics studies or assessment of major toxicity) are exempt from this requirement. Trial registry name, registration identification number, and the URL for the registry should be included in the Acknowledgements. Examples of registries are the US National Library of Medicine registry (http://www.clinicaltrials.gov) and the International Standard Randomized Controlled Trial Number (ISRCTN) registry (http://www.controlled-trials.com).

**Disclosure of potential conflict of interest**
All authors are required to disclose potential conflicts of interest relevant to the subject of their article at the time of submission. Conflicts of interest may arise when authors or immediate family members have a financial or personal relationship with organizations that could potentially be perceived as influencing the described research. Financial relationships include compensation for services (e.g., employment, consulting fees, honoraria, expert testimony, advisory boards, speaker's bureau), equity interest (e.g., stocks, stock options, bonds, or other ownership interests), intellectual property rights (e.g., patents filed or pending, copyrights, royalties), and direct research support (e.g., grants, contracts, or material support). Disclosure of information about potential conflicts of interest is intended to improve transparency and allow readers to form their own judgments of competing influences on the described research. Include a statement in the Acknowledgments stating whether all authors have disclosed potential conflicts of interest (if there are none, include a statement to this effect) and whether all authors have read the journal’s policy on conflicts of interest.

**Disclosure of funding source**
Authors are required to identify sources of financial support for the conduct of the research and/or preparation of the article and to briefly describe the role of the sponsor(s), if any, in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication. If the funding source(s) had no such involvement, then this should be stated. Include a statement describing the funding source in the Acknowledgments.

**Authorship agreement**
The publisher and editors of Translational Research subscribe to the definitions of authorship as set forth in the Uniform Requirements for Manuscripts Submitted to Biomedical Journals; accordingly, we expect each listed author to accept full responsibility for the paper. Submission of an article implies that it has been reviewed by and approved by all named authors; that the corresponding author is empowered by all of the authors to act on their behalf with respect to submission to Translational Research; that the article is original; that the article does not infringe upon any copyright or other proprietary right of any third party; that neither the text nor the data reported have been published previously (abstracts and electronic preprints excepted); that the article or a substantially similar article is not under consideration by another journal at this time, that its submission and publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried, and, if accepted, it will not be published elsewhere including electronically in the same form, in English or in any other language, without the written consent of the copyright-holder. Furthermore, articles submitted to Translational Research are reviewed (and ultimately published) with the understanding that all potential copyright conflicts have been addressed by the author(s) and that all overlap with other publications by the authors or by others have been disclosed. Moreover, in the event that fraud or other irregularity is alleged within 5 years of the appearance of a paper in Translational Research, it is our expectation that the authors will at our request produce both the actual data on which the paper was based and documentation of adequate resources to have carried out the work in question. It is understood that statements and opinions expressed in articles and communications are those of the author(s) and not necessarily those of the editor(s) or publisher, and the editor(s) and publisher disclaim any responsibility or liability for such material. If the article is accepted, a form transferring copyright will be sent to the corresponding author. Include a statement in the Acknowledgments stating whether all authors have read the journal's authorship agreement.

**Article in press**
Accepted articles will be published online ahead of the printed issue and can be viewed at http://translationalres.com/inpress. Early online publication significantly reduces the time from acceptance to publication to approximately 4 weeks.
Publishing options and copyright
This journal offers authors a choice in publishing their research: open access and subscription.

Subscription
THERE IS NO PUBLICATION FEE. Articles are made available to subscribers as well as developing countries and patient groups through our access programs (http://www.elsevier.com/access).

Open Access
Articles are freely available to both subscribers and the wider public with permitted reuse. An open access publication fee is payable by authors or their research funder. The publication fee for this journal is $3,000, excluding taxes. Learn more about Elsevier's pricing policy: http://www.elsevier.com/openaccesspricing.

Articles published through open access or subscription models will have no effect on the peer-review process or acceptance of submitted articles.

Funding body agreements and policies
Elsevier has established agreements and developed policies to allow authors whose articles appear in journals published by Elsevier, to comply with potential article archiving requirements as specified by conditions of their grant awards. To learn more about existing agreements and policies, please visit http://www.elsevier.com/fundingbodies.

Language (usage and editing services)
Please write your text in standard English (American or British usage is accepted, but not a mixture of these). Authors who feel their English language article may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to contact the Managing Editor, Michael Franklin, MS (frank061@umn.edu) for a referral to a professional medical editor.

Article transfer service
This journal is part of our Article Transfer Service. This means that if the Editor feels your article is more suitable in one of our other participating journals, then you may be asked to consider transferring the article to one of those. If you agree, your article will be transferred automatically on your behalf with no need to reformat. Please note that your article will be reviewed again by the new journal. More information.

Color Figure Charge
Authors are encouraged to submit color figures, which will be published online at no cost; however, the expense of reproducing color figures in print must be borne by the authors. The charge for reproduction of color figures is $650 for the first figure and $100 for each subsequent figure. Any figure submitted in color and requiring color for adequate representation of data-as judged by the reviewers-will be reviewed and processed with the understanding that the figure will appear in color in the printed version of the journal at the author's expense. Authors unable to pay color figure charges may request a waiver in the cover letter at the time of submission.

Copyright
Upon acceptance of an article, authors will be asked to complete a 'Journal Publishing Agreement' (see more information on this). An e-mail will be sent to the corresponding author confirming receipt of the manuscript together with a 'Journal Publishing Agreement' form or a link to the online version of this agreement.

Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution and for all other derivative works, including compilations and translations. If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has preprinted forms for use by authors in these cases.
For gold open access articles: Upon acceptance of an article, authors will be asked to complete an 'Exclusive License Agreement' (more information). Permitted third party reuse of gold open access articles is determined by the author's choice of user license.

**Author rights**
As an author you (or your employer or institution) have certain rights to reuse your work. More information.

**Elsevier supports responsible sharing**
Find out how you can share your research published in Elsevier journals.

**Green open access**
Authors can share their research in a variety of different ways and Elsevier has a number of green open access options available. We recommend authors see our green open access page for further information. Authors can also self-archive their manuscripts immediately and enable public access from their institution's repository after an embargo period. This is the version that has been accepted for publication and which typically includes author-incorporated changes suggested during submission, peer review and in editor-author communications. Embargo period: For subscription articles, an appropriate amount of time is needed for journals to deliver value to subscribing customers before an article becomes freely available to the public. This is the embargo period and it begins from the date the article is formally published online in its final and fully citable form. Find out more.

This journal has an embargo period of 12 months.

**Elsevier Researcher Academy**
Researcher Academy is a free e-learning platform designed to support early and mid-career researchers throughout their research journey. The "Learn" environment at Researcher Academy offers several interactive modules, webinars, downloadable guides and resources to guide you through the process of writing for research and going through peer review. Feel free to use these free resources to improve your submission and navigate the publication process with ease.

**PREPARATION**

**Submission**
Articles should be submitted online at https://ees.elsevier.com/transres. The website guides authors stepwise through the submission process. Submission items include a cover letter (save as a separate file for upload), the manuscript (including title page, abstract, main text, references, and figure legends), tables, and figures. Revised manuscripts should also be accompanied by a separate file (separate from the cover letter) with responses to reviewers' comments. Original source files (not PDF files) are required for online submission. Files should be labeled with descriptive file names (e.g., SmithText.doc, Fig1.tif, Table3.doc). Do not import figures or tables into the text of the article. The article must be written in English and typed double-spaced.

**Peer review**
This journal operates a single blind review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of two independent expert reviewers to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. More information on types of peer review.

**Article structure**
The article text should be divided into clearly defined sections. Each section should be given a brief heading. The organization of review articles should be appropriate to the content of the review. The following main section headings are required for Full-Length Articles.

• **Introduction.** State the objectives of the work and provide an adequate background that orients the general scientific reader to the topic. Avoid a detailed literature survey or a summary of the results.
• **Material and methods.** Provide sufficient detail to allow the work to be reproduced. Methods already published should be indicated by a reference: only relevant modifications should be described. Include a description of statistical methods used
• **Results.** Results should be clear and concise. Results may be presented in tables or figures that should not duplicate the text.
• Discussion. Synthesize the results into a cohesive story in the context of the published literature. Set forth the major conclusions of the authors. Do not repeat information from the Introduction or Results section. Avoid extensive citations and discussion of published literature.

Title page
• Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formula where possible.
• Author names and affiliations. Include the names and affiliations of the author(s). Indicate all affiliations with a lower-case superscript letter immediately after the author’s name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.
• Corresponding author. Indicate the address of the author to whom correspondence and reprint requests should be directed. The corresponding author is expected to handle correspondence at all stages of refereeing, publication, and post-publication. Ensure that phone numbers (with country and area code) are provided in addition to the e-mail address and the complete postal address.
• Running head and abbreviations. Include an abbreviated title (45 characters or less) and a list of definitions of any abbreviations used in the article. Because this is a multidisciplinary journal, abbreviations should be kept to a minimum. It is preferable to use only universally understood abbreviations. Only standard chemical or nonproprietary pharmaceutical nomenclature should be used. All abbreviations must be defined separately in the title, abstract, and text of the manuscript.

Abstract
An abstract of 250 words or less should orient the reader to the purpose of the research, the principal results, and major conclusions, all in one paragraph without subheadings. It should be easily understood without reference to the text.

Acknowledgements
In addition to the customary recognition of nonauthors who have been helpful to the work described, this section must disclose, where appropriate, all sources of support for the investigation, any potential conflicts of interest, and clinical trial registry information. Additionally, include statements that all authors have read the journal's authorship agreement and policy on disclosure of potential conflicts of interest. Acknowledgements should be made in a separate section at the end of the article after the Discussion and before the references.

References
All references must be cited in the text. These should be numbered serially in the text and listed, in the order cited, after the Acknowledgments section. Reference format should follow the style outlined in Uniform Requirements for Manuscripts Submitted to Biomedical Journals (Vancouver style). Authors are responsible for the accuracy of their references. Unpublished results and personal communications do not belong in the reference list; they should be cited parenthetically in the text. For more information on reference formatting, see the “Additional Information” link below.

Figure Legends
Ensure that each illustration has a legend. Legends for figures should be typed double-spaced on a separate page after the References. A legend should comprise a brief title (not on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

Figures and tables
Number figures and tables consecutively in accordance with their appearance in the text. Ensure that the data presented in figures and tables do not duplicate results described in the article text.

Data references
This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article.

Reference management software
Most Elsevier journals have their reference template available in many of the most popular reference management software products. These include all products that support Citation Style Language styles, such as Mendeley and Zotero, as well as EndNote. Using the word processor plug-ins from
these products, authors only need to select the appropriate journal template when preparing their article, after which citations and bibliographies will be automatically formatted in the journal's style. If no template is yet available for this journal, please follow the format of the sample references and citations as shown in this Guide. If you use reference management software, please ensure that you remove all field codes before submitting the electronic manuscript. More information on how to remove field codes.

Users of Mendeley Desktop can easily install the reference style for this journal by clicking the following link:  
http://open.mendeley.com/use-citation-style/translational-research

When preparing your manuscript, you will then be able to select this style using the Mendeley plugins for Microsoft Word or LibreOffice.

**AudioSlides**
The journal encourages authors to create an AudioSlides presentation with their published article. AudioSlides are brief, webinar-style presentations that are shown next to the online article on ScienceDirect. This gives authors the opportunity to summarize their research in their own words and to help readers understand what the paper is about. More information and examples are available. Authors of this journal will automatically receive an invitation e-mail to create an AudioSlides presentation after acceptance of their paper.

**AFTER ACCEPTANCE**

**Use of the Digital Object Identifier**
The Digital Object Identifier (DOI) may be used to cite and link to electronic documents. The DOI consists of a unique alpha-numeric character string which is assigned to a document by the publisher upon the initial electronic publication. The assigned DOI never changes. Therefore, it is an ideal medium for citing a document, particularly 'Articles in press' because they have not yet received their full bibliographic information. Example of a correctly given DOI (in URL format; here an article in the journal *Physics Letters* B):  
http://dx.doi.org/10.1016/j.physletb.2010.09.059

When you use a DOI to create links to documents on the web, the DOIs are guaranteed never to change.

**Online proof correction**
Corresponding authors will receive an e-mail with a link to our ProofCentral system, allowing annotation and correction of proofs online. The environment is similar to MS Word: in addition to editing text, you can also comment on figures/tables and answer questions from the Copy Editor. Web-based proofing provides a faster and less error-prone process by allowing you to directly type your corrections, eliminating the potential introduction of errors. If preferred, you can still choose to annotate and upload your edits on the PDF version. All instructions for proofing will be given in the e-mail we send to authors, including alternative methods to the online version and PDF. We will do everything possible to get your article published quickly and accurately. Please upload all of your corrections within 48 hours. It is important to ensure that all corrections are sent back to us in one communication. Please check carefully before replying, as inclusion of any subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility. Note that Elsevier may proceed with the publication of your article if no response is received.

**Offprints**
The corresponding author will, at no cost, receive a customized Share Link providing 50 days free access to the final published version of the article on ScienceDirect. The Share Link can be used for sharing the article via any communication channel, including email and social media. For an extra charge, paper offprints can be ordered via the offprint order form which is sent once the article is accepted for publication. Both corresponding and co-authors may order offprints at any time via Elsevier's Webshop. Corresponding authors who have published their article gold open access do not receive a Share Link as their final published version of the article is available open access on ScienceDirect and can be shared through the article DOI link.

**AUTHOR INQUIRIES**
For inquiries relating to the submission of articles (including electronic submission) please visit this journal's homepage. For detailed instructions on the preparation of electronic artwork, please visit http://www.elsevier.com/artworkinstructions. Contact details for questions arising after acceptance of an article, especially those relating to proofs, will be provided by the publisher. You can track accepted articles at  
http://www.elsevier.com/trackarticle. You can also check our Author FAQs at  
http://www.elsevier.com/authorFAQ and/or contact Customer Support via  
Publisher Details
Luke Verrillo
Publisher, Health & Medical Sciences, STM Journals
Elsevier
1600 John F Kennedy Blvd., Ste. 1800
Philadelphia, PA 19103
l.verrillo@elsevier.com

Editorial Office
Please send queries concerning the submission or review process to the Managing Editor, Michael Franklin, MS at frank061@umn.edu.

© Copyright 2018 Elsevier | https://www.elsevier.com